OPERATING POLICY 11
CERTIFICATION AND MAINTENANCE OF FIRE PROTECTION SYSTEMS

Kirkland Fire/Building Department • 123 Fifth Avenue, Kirkland, WA 98033 • (425) 828-1293

I. SCOPE

The purpose of this guideline is to provide general information regarding certification and maintenance of all fire protection systems and/or equipment. The Bureau of Fire Prevention may be contacted regarding any specific requirements.

II. GENERAL

A. All fire protection systems shall be maintained in an operative condition at all times and shall be repaired or replaced when defective. The systems referred to shall include, but are not limited to the following: fire alarm, sprinkler, standpipe, smoke removal systems, and smoke and heat ventilators.

B. All fire protection systems shall be extended, altered or augmented as necessary to maintain and continue protection, whenever any building so equipped is altered, remodeled or added to. Any additions or alterations to any system shall be done under permit issued by the Kirkland Fire Department. If any of the work involves wiring, an electrical permit is required by the State Department of Labor and Industries.

C. The owner of the building, or designated representative, and/or occupant shall be responsible for the maintenance, repair and periodic certification of the fire protection systems.

D. Service personnel performing maintenance, repair or certification of systems shall be licensed and/or certified, and qualified as listed below:

Fire Alarm Systems--Washington State low voltage electrical license

Sprinkler Systems--Washington State licensed Fire Sprinkler Contractor.

Hood & Duct systems--qualified personnel normally engaged in that type business.

Standpipes--Washington State licensed Fire Sprinkler Contractor.

III. PROCEDURES

A. Results of all tests and certifications shall be recorded on forms approved by the Bureau of Fire Prevention. When all corrections have been completed, the forms shall be maintained on the premises and made available to department personnel during the annual building inspection.

B. Any deficiencies found during the testing procedures shall be corrected immediately or as soon as practical. In the event a system is **out of service** and corrections cannot be done within a reasonable time frame (the same day) the Bureau of Fire Prevention shall be notified immediately.

A fire watch may be required when in the opinion of the Fire Chief it is essential for public safety. The owner, agent and/or occupant shall employ one or more qualified persons, as required and approved by the Fire Chief to be on duty during such time the system remains out of service. Such individuals shall be subject to the Chief's orders during such time the building is occupied.

C. **Fire Alarm Systems:** Shall be certified annually.

1. All devices must be tested and checked per nationally recognized standards (NFPA) and the manufacturer's recommendations for proper operation.

2. Verify the fire alarm system operates on back-up power.

3. Check control panel and supervisory circuits for proper operation as designed.

4. Check the battery and charge circuit voltage for proper operation as designed.

5. Test all automatic sprinkler water flow switches and supervisory switches for proper operation as designed.

6. Verify ALL auxiliary equipment operates properly as designed i.e. smoke control fans, door locks or release, fire dampers, etc.

7. Verify all fire alarm annunciators operate correctly as designed.

8. Verify that audibility of the system has not been impaired (partition walls, etc.).

D. **Automatic Fire Sprinkler Systems:** Shall be inspected and tested annually .

1. Inspect piping to ensure it is secure.

2. Note any areas not adequately protected.

3. Conduct flow tests by opening the system main drains to ensure all valves are open (both wet and dry systems). Record static and residual pressures.

4. Check ALL valves for proper operation.

5. Test any outside bells or horns for proper operation, electrical and mechanical.

6. Perform a visual inspection of the sprinkler heads for damage, corrosion, painting, or other conditions which may render a sprinkler head inoperative.

7. Conduct trip tests on dry systems (dry tripping is acceptable). A full flow trip shall be required every three years. Verify that the air compressor will refill the system within 30 minutes.

8. Inspect the Fire Department pumper connection for proper signaled, damage, obstructions, and clapper valve operation.

9. Replace sprinkler heads under the following conditions:

    a. Standard upright or pendant head over 50 years old.

    b. Extra high temperature head (325°F or greater) over 5 years old.

    c. Residential or quick response head over 20 years old.

(NOTE: With approval of the Chief a representative sample or 1% of the sprinkler heads may be submitted to Underwriters Laboratories for testing which ever is greater. If the testing procedure is used it shall be conducted at 10-year intervals, except the high temperature heads shall be conducted at 5-year intervals.

10. Ensure a supply of spare heads is available.

11. Verify that sprinkler valves have seals unless electrically supervised by a fire alarm system and/or approved central station.

12. Ensure signs are provided on all valves, indicating what they control, including the room where the sprinkler valve is located.

13. On deluge and pre-action systems, tests shall include the heat actuating devices to verify proper operation.

14. Ensure that the system is left in service with the valves in the proper position.

15. Verify that sectional pressure regulating valves flow at designed pressure and GPM for each particular system.

E. **Fire Pumps**: Shall be tested annually, in accordance with the following:

1. Record the starting and running amperage on all legs of the controller.

2. Test the fire pump on back-up power if applicable.

3. Verify the fire pump will start on water flow and pressure drop.

4. Verify that any back-up pump will operate if lead pump fails (if applicable).

5. Check controller for proper operation.

6. Conduct a 300 GPM flow for 10 minutes minimum at the roof or other suitable location.

7. Verify that a maintenance log is kept, indicating testing and service. The log shall be available for Fire Department inspection.

E. **Standpipes:** Shall be inspected and tested as outlined below:

1. Class I standpipes shall be hydrostatically tested at 200 psi at the bottom of the riser, or 50 psi over normal working pressure for two hours. This test shall be conducted every five years (test to include the pumper connection line).

2. A 25 psi air test may be conducted to determine any leaks prior to the hydrostatic test.

3. Inspect pumper connections to ensure proper signaled and any evidence of damage or debris. If any indication of debris is present backflushing is recommended.

4. Inspect and/or test caps, plugs, covers, and valves for damage and proper operation. To be done annually. 1/8-inch pressure relief hole(s) shall be installed in all 2-1/2 inch discharge caps.

F. **Shaft pressurization systems:** Shall be tested annually.

1. Verify systems operate when the fire alarm system is activated.

2. Record shaft pressure readings at the top and bottom floors.

G. **Emergency Generators:** Shall be tested annually.

1. Verify generator starts on power failure (should start within 30 seconds).

2. Test the generator under full load (all attached equipment in operation).

3. Verify systems operate properly on generator.

4. Verify fuel supply (2-hour minimum)

5. Verify transfer switch operates correctly.

6. Verify record of routine maintenance is being kept, indicating tests and service. The record shall be available for Fire Department inspection.

7. Verify that the generator will shut off automatically when normal power is restored.

H. **Smoke removal systems and smoke and heat ventilators:** Shall be checked and tested annually.

1. If building has smoke removal fans, verify that they will operate on activation of a fire alarm and continue to operate under emergency power.

2. Verify that manual control of smoke removal fans is provided. (on and off switch)

3. Verify that fire dampers operate with smoke removal fans (if applicable).

4. Heat and smoke ventilators shall be inspected and operated annually.

I. **Halon systems:** Shall be checked and tested annually.

1. The same testing procedure as for fire alarm systems shall be used for testing smoke and heat actuating devices. In addition:

   a. All systems shall be thoroughly inspected and tested for proper operation, as designed, by competent personnel.

   b. The agent quantity and pressure of refillable containers shall be checked. If a container shows a loss in net weight of more than five percent or a loss in pressure of more of more than 10 percent, it shall be refilled or replaced.

   c. The weight and pressure of the container shall be recorded on a tag attached to the container.

J. **Hood and Duct Extinguishing Systems**: Shall be tested and serviced every six months.

   1. All systems shall be mechanically tripped to verify proper operation.

   2. Verify all cooking equipment shuts off when system trips.

   3. Verify that all cooking equipment is covered by the hood and extinguishing system.

4. The fusible links and/or sprinkler heads shall be replaced annually.

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Jeff Blake, Fire Chief
Kirkland Fire Department